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The process of ensuring continuity of care is essential to an effective DeWitt Army Community Hospital (DACH) coordinated care marketing program focused on bringing the chronic CHAMPUS and outpatient service user into the military treatment facility's managed care system. The Family Practice Clinic at DACH is the only clinic in the facility that has a goal of insuring beneficiaries receive continuity of care by seeing the same physician over time.

The review of the literature has highlighted two methods of determining continuity of care to enrolled members. Both of these methods were used to determine continuity of care in the DACH Family Practice Clinic. The first continuity index determines the patient's level of satisfaction. The second usual provider continutiy index is used to determine physicians' satisfaction. However, none of the literature reviewed gave insight on ways to manage individual physician panels.

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Continuity of Care as an Issue at a United States Army Community Hospital with a Family Practice Residency Program

A Graduate Management Project

Submitted to the Faculty of

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In Partial Fulfillment of the

Requirements for the Degree

of

Master of Health Administration

Captain Joshua P. Kimball

Running head: FAMILY PRACTICE

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ABSTRACT

One of the Army's Coordinated Care principles has to do with continuity of care for the beneficiary population. The process of ensuring continuity of care is essential to an effective DeWitt Army Community Hospital (DACH) Coordinated Care marketing program focused on bringing the chronic CHAMPUS and outpatient service user into the military treatment facility's managed care system.

The Family Practice Clinic at DACH is the only clinic in the facility that has a goal of ensuring beneficiaries receive continuity of care by seeing the same physician over time. The thought is, with increased continuity there is a positive correlation of satisfaction for the beneficiary. When the beneficiary is satisfied with the care he or she receives, there is less tendency to shop for medical treatment, appointments are kept, and there is an opportunity for physicians to practice preventive medicine. This continuity stems from a defined entry point into the DACH health care system. Associated with continuity is provider satisfaction. If the provider of care is able to build physician-patient relationships, then the provider tends to find satisfaction in possible results associated with continuity of care.

The Family Practice program offers an excellent opportunity to learn the details necessary to initiate continuity of care throughout all primary care clinics within the DACH health care network. Determining the optimal way to manage the Family Practice impanelment process to ensure prompt, efficient and appropriate entry to the health care delivery system has implications that can address the overall continuity of care issue in a coordinated care environment.

The review of the literature has highlighted two methods of determining continuity of care to enrolled members. Both of these methods were used to determine continuity of care in the DACH Family Practice Clinic. The first, continuity index, determines the patient's level of satisfaction. The second, usual provider continuity index, is used to determine physicians' satisfaction. However, none of the literature reviewed gave insight on ways to manage individual physician panels.

This study demonstrates that the majority of patients impanelled in Family Practice receive a low continuity of care, which may result in the possibility of decreased patient and physician satisfaction. Families may remain in the program because it does provide an entry point into the health care system, one in which they are able to make appointments.

The data gathered provides the Family Practice Administration with information on many problems with the current system and provides insight for ways of managing continuity of care issues.

INTRODUCTION

Conditions that Prompted the Study

General

DeWitt Army Community Hospital (DACH), Fort Belvoir, Virginia, is a medium size community hospital with an inpatient capacity of 109 beds, 20 of which are bassinets. The average daily inpatient census is 62 patients, three of which are new born babies. The hospital administration is in the process of shifting the focus of the hospital from inpatient services to one of primary care. This is consistent with national trends and reflects the medical needs of the population served, many of whom have other options for inpatient care in the National Capital Region. Currently there are approximately 1,100 outpatient visits per day (Command Briefing, 1992).

Unfortunately getting a handle on the users of the system is difficult. Beneficiaries typically shop for the medical care they receive. The current system allows beneficiaries to receive medical care at any Department of Defense (DoD) medical facility in the National Capital Region (NCR) or CHAMPUS accepting provider to receive medical care. Typically the beneficiary in a metropolitan area such as the NCR will shop for the most convenient appointments and services available at all the military treatment facilities as well as with CHAMPUS providers. The administration of DACH is looking for ways to bring the beneficiary population of the DACH catchment area who use the DoD

medical system into some form of managed care arrangement.

This process will provide the hospital commander with a methodology to align the beneficiary population for which he or she is responsible to provide medical care. Under the plan, beneficiaries will be impanelled with a primary care provider or clinic where the beneficiary will receive all initial care. This provider or clinic will be responsible for managing all care, to include specialty care, of the patient (U. S. Army, January, 1992).

Theoretically, the enrolled beneficiary gives up freedom of choice of provider and/or treatment location in favor of lower out-of-pocket costs due to reduced CHAMPUS co-pay and deductible charges. The government contains costs by preventing the beneficiary from shopping for care and arranging for reduced rates from a network of civilian providers who accept CHAMPUS payment (U. S. Army, January, 1992).

In order to be successful in this endeavor, a health care system must be in place that is acceptable to beneficiaries. One of the perceived successes at DACH is the Family Practice Clinic. A working hypothesis for this study is that, by studying the impanelment aspects of this clinic, a template can be drawn that will facilitate the impanelment process into other primary care clinics within the DACH health care system while increasing patient and provider satisfaction.

Continuity of care in the Family Practice Residency program

is essential in the development of a Family Practice physician (Family Practice Clinic, 1993). Determining the optimal way to manage Family Practice continuity of care issues while ensuring prompt, efficient and appropriate health care is essential for patient and staff satisfaction and resident development.

The knowledge gained from this study can also be used for implementation to other clinics as DACH moves to impanel beneficiaries in other primary care clinics. Understanding the characteristics associated with impanelled members is key to ensuring continuity of care in an expanded managed care system.

Family Practice

The Family Practice Clinic is the only clinic at DACH that requires impanelment before beneficiaries can receive medical care. Interested families must complete an enrollment form to be accepted into the Family Practice program. The waiting list for impanelment is from one and one-half years to two and one-half years. Once a panel slot opens up, a letter is sent to the family notifying them they have been accepted into the program. The letter also informs the family with the name of their assigned physician.

The Family Practice Clinic conducts residency training in the Family Practice specialty. Critical to this training is the observance of patient longitudinal care by a single provider. Continuity of care allows the residents to conduct longitudinal treatment regiments for disease and illness and observe the

responses associated with treatment while ensuring efficient treatment of the patient (Family Practice Clinic, 1993).

The Family Practice program offers an excellent opportunity to learn the intricate details necessary to operate and manage continuity of care issues. Studying the Family Practice system, gaining an understanding of how it functions, and refining the system should therefore, ease the transition to impanelment at other DACH primary care clinics.

There are 35 physicians assigned to the Family Practice Clinic. All but one of these physicians are military, the one who is not is a government service (GS) employee. The 35 physicians are divided into five physician types. These types are comprised of 11 faculty, 5 staff, 7 post graduate year (PY) 3 residents, 6 PY2 residents and 6 PY1 residents. The faculty to resident ratio is 1.72 to 1.

Each physician is assigned a group of families known as panels. The Directory of Graduate Medical Education Programs, 1992-1993, provides guidelines for panel size and clinic time for Family Practice Residency programs (Etzel, 1992). The panel size is determined by the physician type. Faculty physicians have an average panel size of 148 families, staff average 264 families, PY3 average 153 families, PY2 average 80 families and PY1 average 25 families. The reason for the disparity is the amount of time each physician type spends in the clinic. PY3 residents spend four half-days in the clinic, PY2 residents spend three half-

days, and PY1 residents spend one half -day in the clinic. The staff spend five days in the clinic and faculty clinic time varies.

Unfortunately, there currently is no established method of ensuring those who are impanelled in the Family Practice program are seeing their assigned physician or for that matter, receiving primary care in Family Practice. Therefore, there is no mechanism to ensure continuity of care is being achieved. This clearly has the potential to cause problems with managing physician panels.

Physicians are assigned a number of families based on the physicians' status within the program (i.e., faculty, staff, or resident). The panel members assigned to each physician are maintained in a stand-alone personal computer that is not connected to the Automated Quality of Care Evaluation Support System (AQCESS) computer system. When patients call for an appointment, they are given an appointment by a clerk who uses the AQCESS computer system.

Because of the two systems employed, there is no way to determine if the physician asked for by the patient is in fact that patient's assigned physician. Therefore, a physician who is popular, or readily available, may be seeing the patients from an unpopular physician or a physician who has limited appointments due to other commitments. If this is the case, then the popular/available physician has his or her assigned panel plus a

"ghost" panel comprised of patients from other physicians' panels. The larger a physician's panel becomes, the more difficult it is for assigned patients to receive appointments with that physician.

Likewise, the larger a physician's ghost panel becomes, the less opportunity he or she has to see assigned panel members. This causes patient management and access problems and, ultimately, degrades continuity of care. If a family can not see their assigned physician, they usually see the first available physician. When this occurs, continuity of care, as defined by the administration of the Family Practice Clinic, is lost.

STATEMENT OF THE MANAGEMENT PROBLEM

In order to ensure continuity of care, three areas must be functional. These areas are the impanelment process, the appointment process and physician availability. When there is a break in any one of these areas, continuity of care for the patient suffers. The focus of this paper is limited to the area of impanelment, however, some discussion of appointment process and physician availability may be necessary because of the interrelationships.

REVIEW OF THE LITERATURE

A review of the literature found ample information addressing continuity of care. Unfortunately, many authors had their own definition of "continuity". Also prevalent in the literature were studies addressing the various characteristics of

individuals who have enrolled in, as well as disenrolled from, prepaid health care programs. There was little information addressing the impanelment process or management of physician panels.

History

The concept of the family physician is not new. Chisholm (1978) states that the family physician concept can be traced back to Buddha and Aesculapius. Each period since then has had its own form of family practitioner.

The family physician as known in the western world originated from the general practitioner. At the turn of this century, the vast majority of providers were generalists. Many of these physicians came from the diploma mills in existence before the Flexnor report revolutionized the medical university system. The general practitioner brought a wide variety of skills to the population to include surgery, pediatrics, obstetrics, medicine and psychiatry. These skills caused families to gravitate toward general practitioners as the physician type for all family members (Geyman, 1971; Chisholm, 1978).

As time went on, the number of generalists decreased due to the increase in knowledge and technology which led to medical specialties. In 1931, 83 percent of all U. S. physicians were generalists, by 1940, that percentage had dropped to 76 and by 1950 only 50 percent of the practicing physicians in the U. S.

were general practitioners (Chisholm, 1978; Geyman, 1971).

To help overcome this steady decline, the Academy of General Practice was formed in 1947. The mission of the organization was to promote general medicine, help physicians become established general practitioners, and have an avenue of continuing education. In 1950 the American Medical Association (AMA) approved residency training in general practice. However, as residency programs developed, there was decreasing interest in general medicine programs and many program seats were not filled. In 1968, only 45%, 402 out of 902, of general practice positions were filled (Chisholm, 1978; Geyman, 1971).

By 1960, the United States Government and the medical profession became concerned about the shortfall in the number of generalists. In 1961, the Executive Director of the American Association of Medical Colleges stated there was a need for a new specialty that would require more diagnostic procedures. This was, in part, an attempt to increase the appeal and status of generalists by bringing their scope of practice into the realm of a specialist. In 1962, the World Health Organization (WHO) realized there was a worldwide shortage of family physicians. The WHO wanted medical training to include exposure to family practice (Chisholm, 1978).

The establishment of a family practice residency program took several years. The main reason was one of definition; general practice was such a broad field it could not easily be

focused into a specialty. It was not until 1969 that the American Board of Family Practice was developed. The functioning board was like no other in that it consisted of members from other specialties. The Board members decided that there would be no "grandfather clause" to allow physicians to become certified Family Practitioners. All individuals wishing to be certified in Family Practice had to pass the certification examination. This method of being certified was available until 1978. After that date, the only way of becoming board certified was to successfully complete an accredited three year Family Practice residency program (Chisholm, 1978).

Reuben, McCue, and Gerbert (1988) contend that residency programs have shifted from the main mission of providing an educational experience necessary for the resident to effectively learn the interpersonal skills necessary to practice medicine. Many of these skills are necessary for seeing past the expressed symptom and identifying underlying reasons for the physician encounter. Usually this is accomplished through longitudinal care of the patient and a functional physician-patient relationship. Instead, the shift of residency programs is toward a cheap form of labor for hospitals and faculty members. Residents are used to treat short, acute episodes of care at the inpatient setting and little is done to ensure the physician has the skills required to practice in the outpatient setting.

Reuben et al. (1988) challenge that residents are used to do

the work of faculty and staff, resulting in a high level of dissatisfaction, and diminished quality physician-patient relationships. At the end of the residency, the physician lacks interpersonal skills necessary for establishing individual patient care plans and patient management. The repercussions are physicians attempting to establish practices while learning skills necessary to build physician-patient relationships with an understanding of patient idiosyncracies. Ultimately, it is patients who suffer through the physician's learning process.

Continuity of Care

Much of the literature concerning family practice addresses the continuity of care issue provided by the family practitioner. There appears to be some discrepancy as to the importance of continuity of care in the health care of individuals.

Hennen (1975) states that continuity of care is what differentiates the family physician from the general physician and all specialties of medicine. Hennen qualifies this by stating there are four elements that comprise continuity. These are "... first contact care, longitudinal responsibility, integration, [and]...the family as the unit of care" (p.371).

First contact is entry into the system via a gatekeeper. The military health care system is similar to Hennen's (1975) concept in that the patient is a part of the formal health care system, and when military members and their dependents change residence, they merely change their place of care. Longitudinal

responsibility involves the physician/patient relationship over the life of the patient. Integration involves bringing knowledge from many specialties to a focal point, the family physician. The family as a unit concept incorporates a heuristic approach to health care not only to the individual patient, but also the patient's family (Hennen, 1975).

Under this concept, Hennen (1975) states there are four dimensions to continuity. These dimensions are chronological, geographical, interdisciplinary and interpersonal. The chronological aspect involves the care over various ages of an individual's life. As that individual ages, the physician is able to observe the changes in the individual's life and use these observations as a diagnostic tool.

The geographical aspect is not associated with the site of care, but the concept of the family physician as gatekeeper. The gatekeeper being the one who is constantly in touch with the patient throughout the spectrum of care received from the health care system.

The interdisciplinary aspect involves managing the patient's care through a wide spectrum of illnesses and disease processes. The family physician acts as a gatekeeper by recommending a specific specialist for the patient to visit for alleviation of illness and disease (Hennen, 1975).

Finally, the interpersonal aspect concerns the patient-physician relationship of trust and mutual respect. Over a

period of visits, patients become comfortable with physicians and tend to be more willing to express their own ailments as well as possible problems with other family members (Hennen, 1975)

Tying all four of these dimensions together is the [illegible]en record. If we improve the continuity of information in the medical record, we have, to a great extent, increased continuity of care to the patient. As the patient moves from physician to physician, a well maintained medical record ensures that the patient's illnesses and problems are incorporated into all treatment measures. A family physician who does not maintain a complete medical record can not maintain continuity of care over a patient's lifetime due to the sheer volume of patients and patient encounters that physician will see over the years of practice (Hennen, 1975).

This concept of the medical record being key to continuity is endorsed by Hjortdahl. Hjortdahl (1987) recommends that continuity start with a regular source of medical care defined by location. He argues that a panel of physicians can monitor a panel of enrollees with the patients' medical record being the key source of continuity of care.

McWhinney (1975) states that continuity of care by a family physician consists of two aspects, commitment of the physician to the patient and continuity of responsibility throughout the life of the patient-physician relationship. Unfortunately, once a resident completes the program, he or she moves on to another

place to establish a medical practice. Therefore, the residency experience should give the resident an understanding of the longitudinal physician-patient relationship and allow the resident time to establish relationships with families.

The study conducted by Rogers and Curtis (1980) found that patients are not concerned with seeing the same physician for their care. It is physicians who stress the importance of continuity of care. It may be that patients do not know what is good for them, or patients are more concerned with convenience and are willing to see the first available physician to help alleviate their acute illness.

Rogers and Curtis (1980) discuss that what the patient wants in the form of continuity may be associated with the age of the patient. Older patients with chronic illnesses tend to want to be seen by the same physician, while the younger patients with acute illnesses want the convenience of quick service.

Rogers and Curtis (1980) discuss a continuity index defined as the number of visits with the assigned physician or the patient's selected physician, divided by the total number of visits to the clinic in a given time frame. The higher the percentage, the higher the continuity of care. Using the continuity index, administrators can look at how well their clinic is providing continuity of care to an impanelled population.

By studying a clinic's continuity index, an administrator

can gauge the desires of his or her patient population. The percentage of the population with a high index may demand seeing the same physician. Those with a low index may not feel it is necessary to see the same physician, or may have an access problem. This being the case, the administrator can design physician panels and the appointment system to best serve the plan's impanelled members.

Blankfield, Kelly, Alemagno and King (1990) state there is no clinical evidence that continuity of care is a benefit to the health of patients, therefore it is not necessary for appropriate treatment of patients. However, Blankfield et al. (1990) suggest that continuity of care is a predictor of physician satisfaction. It can be deduced from this that continuity may be required if there is a retention or moral problem with physicians.

Blankfield et al. (1990) recommend the use of the usual provider continuity (UPC) index to determine provider satisfaction. The UPC is the number of assigned panel members seen by the physician over a given time frame divided by the total number of patients seen by the physician over that same time. The Blankfield et al. study was completed at a facility that had a residency program. The program consisted of four full time faculty and 19 residents, resulting in a resident to faculty ratio of 4.75 to 1. A 58% resident and an 82.7% faculty UPC were observed.

The residents in the study were assigned clinic time by

their residency year. Third year residents treated patients four half-days per week, second year residents treated patients three half-days per week and first year residents treated patients one half-day per week. This is the same method employed at the DACH Family Practice Residency Program.

One may conclude that physicians with greater clinic times would have higher continuity. However, the study showed the UPC was lower with the more senior residents. This may stem from the senior resident's availability to see patients who were denied access to the patient's assigned physician. If this is the case in the DACH Family Practice Clinic, then the necessity for continuity of care is not being followed, and the residents are receiving less than optimal training based on the premise that continuity of care is necessary for proper training (Family Practice, 1993).

Gatekeepers

One of the initiatives of the Army's Gateway to Care Program is the concept of providers acting as gatekeepers of health care for the beneficiary population. The driving factors are cost containment and continuity of care.

Hurley, Freund and Gage (1991a), observed that patients with gatekeepers were referred to significantly fewer specialists than a comparison group who did not have gatekeepers. It was noted that, although significant savings did not result, payer interest in the program continued due to the structure the program

provided to the beneficiaries via a gatekeeper. Also, the reduction in emergency room visits was substantial. The goal of the payer was to "...curtail doctor shopping, which results in discontinuous and inefficient service delivery" (p. 167). The authors of the study concluded that greater continuity of care was provided to the beneficiaries with a reduction in prescription drugs and ancillary services. In a study conducted by Clancy and Hillner (1989), there was no difference in the outcomes of patients with like illnesses in a fee-for-service setting verses a Health Maintenance Organization (HMO).

Brody (1986) addresses the ethical considerations of the gatekeeper function. He concludes that five years prior to the publication of his article, the term "gatekeeper" was not associated with the health care industry. However, the concept of financial concerns has always been a part of the physician's decision making process. Physicians act as gatekeepers every time they deny a patient's requests for services, therapy or treatment. What is new, is the concept of physicians denying services based on financial consideration of the HMO, group practice organization or other administrative hierarchy. This has placed physicians in a precarious situation. They have a duty to support both the patient's wishes and the objectives of the organization, when at times the two demands conflict.

Under the fee-for-service system, the beneficiaries' dissatisfaction was directed against the providers, while under

the HMO system, the dissatisfaction was directed against the HMO administration. To combat this, those enrolled in the HMO system were issued a medical card different from the Medicaid medical card. This increased their sense of belonging to the HMO, and a sense of self worth (Temkin-Greener, 1986). Panel members should be issued a medical card that is distinctive to the clinic where they receive their care.

Kongstvedt (1991) states that physicians must take the lead in the managed care environment. The physician is the one who provides services in an efficient manner by determining how, why and where the patient will receive treatment. He further states that, in a managed care plan, initial administrative costs are higher than in an individual practice, yet in the long run, cost savings do result.

Kongstvedt (1991) also states that physicians in a managed care plan tend to be in an adversarial role with patients. Patients tend to make demands for unnecessary care and physicians are caught between the patients' demands and the fiscal needs of the managed care plan. To combat this, physicians must spend more time educating demanding patients and, in most cases, the provider fights loosing battles on both fronts. By providing a monthly seminar for new impanelled members, and anyone else who cares to attend, much of the animosity may be deterred.

Hurley, Gage and Freund (1991b) address the aspect of restricted choice of a provider in a gatekeeper program. The

clinic they studied gave enrollees a choice of provider. If the enrollee did not make a choice, then a physician was assigned. Enrollees were discouraged from changing providers. The study found the use of the emergency room decreased as patients were better educated with regard to the gatekeeper concept. Allowing the DACH beneficiary population choices in where they would like to receive treatment may prevent the Emergency Room from operating as an acute care clinic.

Hurley et al. (1991b) also noted that enrollees who selected their provider were more satisfied than those who were assigned a provider. It wasn't that the restriction of choice was dissatisfying, but the fact that the patient did not know the assigned physician.

Panel Development

Hosek (1993, January), in a presentation to the Coordinated Care Conference provided information from a RAND study on panel size. She stated that an average primary care physician in the civilian sector will have approximately 5,000 outpatient encounters per year. This is determined by assuming 47 working weeks per year, 36 hours of patient appointment time per week, and 24 patient encounters per day, or roughly 3 encounters per hour.

Hosek (1993, January) stated that the national average for primary care visits for individuals under the age of 65 is 2.5 to 3.0 visits per year. By dividing this average into 5,000 visits

per year a physician panel size of 1,600 to 2,000 patients per physician is developed. Variables to this equation are referral activity, age/gender differences and specialty differences.

Jagmin (1993, May) at the Ambulatory Care Conference in San Antonio reiterated the same figures as Hosek for panel size. He did add that panels comprised of individuals over the age of 65 should maintained at approximately 900 members due to differences in visit rates.

Enrollee Characteristics

Mechanic, Weiss, and Cleary (1983), found that individuals enrolled in a health maintenance organization (HMO) had an access problem for acute non-emergency medical problems. Mechanic et al. (1983) also found that enrolled patients were less likely to see the same physician each visit, received impersonal care and perceived their health needs to be of less concern to the physician staff.

Enrollees who are dissatisfied with the services received from an HMO tend to disenroll. New enrollees to a HMO from a fee-for-service environment typically bring a laundry list of health care needs which cause an abnormally high initial cost of care to the HMO. Turnover of impanelled members also raises administrative costs (Mechanic et al., 1983). The initial cost of impanelling DoD beneficiaries may be high, but the cost savings generated by impanelling beneficiaries may out weigh the costs. Impanelment would prevent members from roaming from

provider to provider and receiving duplicate and/or unnecessary services.

Mechanic et al. (1983) found those who disenrolled typically did so due to finding a physician they preferred who was not a HMO participating physician. Those who typically disenrolled were women, were young and/or had few family members enrolled in the plan. The study did not find that patients disenrolled due to unmet health care needs.

The main reason cited by Mechanic et al. (1983) for disenrollment was a perceived access problem. Individuals who disenrolled stated that it was difficult to get HMO appointments and services compared with appointments with individually practicing physicians. Mechanic et al. (1983) found that an other reasons for disenrollment was dissatisfaction due to failure of assigned physicians getting to know patients. It may also represent a marketing failure on behalf of the HMO in explaining to the potential enrollees what can be expected of the HMO.

Mechanic et al. (1983) suggests that those who stayed with the HMO did so because they were aware of the bureaucracy and the operating system of the HMO. The members were not any more satisfied with the care received than those that disenrolled, however, they understood the ground rules. DACH may want to establish a monthly seminar with potentially impanelled members and explain how the system works and what to expect from the

program.

Mechanic et al. (1983) also showed that the greater customer dissatisfaction and higher disenrollment rates were found when pre-paid practices that required patients to see whichever provider was available or wait an extended period of time to see the physician of their choice. This may be due to improperly sized member panels in which case proper sizing is important.

There is some contention that HMO enrollees are initially healthier then traditional fee-for-service patients. This is driven by the perception that HMOs are selective in whom they allow to enroll in the HMO. This is substantiated by Riley, Rabey and Kasper (1989) who looked at the patient population of three HMOs, Fallon Community Health Plan, Kaiser Permanente - Northwest Region, and Greater Marshfield Community Health Plan. All three health plans had lower mortality rates in the enrollee's first year than fee-for-service plans did. However, during years two through five, the mortality rates between fee-for-service and HMO plans became closer until there was no significant difference.

Riley et al. (1989) suggest several possible reasons for the initial difference in mortality the first year. It may be HMOs truly do select a healthier population, or the population selected could have received an increase in access, therefore their health was improved during that first year. Or, it could be that people who are in ill health are reluctant to change

physicians, therefore, having nothing to do with the HMO's selection criteria.

A study by Porell and Turner (1990) found that the use of an independent broker could reduce enrollment selection bias. Porell and Turner further state that the broker could be used as a marketer of the system and educate potential impanelled members on the benefits of impanelment and thereby have chronic users willingly join a managed care organization. Those individuals who are chronic CHAMPUS users should be targeted to be impanelled in the Family Practice program or similar program offered at DACH. If it is strictly voluntary, and chronic users are not individually contacted and asked to join, they will not leave the security of their CHAMPUS provider. It may be beneficial to actively impanelled chronic users of the system in the program by targeting and educating them to the benefits of the program.

As DACH begins to impanel all beneficiaries, an independent broker may be necessary to reduce potential bias associated with assignment of beneficiaries to civilian gatekeepers. This may be important to civilian providers as DACH attempts to entice them to join a network of providers paid via a capitated system. An independent broker could alleviate any fears these providers may have of receiving chronic users of the Department of Defense health care system.

There is an administrative cost associated with the impanelment process itself as well as an increase in medical

usage. From this, we can see that it is better to have a low turnover rate in an HMO plan. Traska (1988) found that new HMO members have an increase in hospital bed days as compared to long-term HMO members. This means that HMOs have a higher initial cost of providing health care to new members.

One of the possible reasons is an increase in accessibility to health care. Those who were not able to purchase health care essentially did little to improve their health or alleviate their medical problems. Once in a HMO however, they seek relief from their chronic problems. This would suggest that enrolling new members is both an administrative and medical resource drain on the HMO. It will be important to ensure a program is not so attractive that it attracts individuals who currently do not use their entitled DoD benefits, but opt to use their employers' health plan.

Temkin-Greener (1986) conducted a study to look at the behavior patterns of families that did not have insurance premiums or out of pocket expenses. The study population was Medicaid recipients enrolled in an Aid to Families with Dependent Children (AFDC) program. The results of the study showed there was a positive correlation with having a point of entry into the system and seeking medical care. However, having a place of entry is not the same as having a regular source of medical care that ensures continuity. Interesting to note in Temkin-Greener's (1986) study was that individuals felt they were seen

quicker on a walk-in basis than when they had an appointment and, therefore, there was no incentive for them to keep appointments they had made. However, in terms of quality, people expressed dissatisfaction with not seeing the same provider during each episode of care. By impanelling beneficiaries, both of these problems are solved.

PURPOSE STATEMENT

The purpose of this study is two-fold: The first is to determine the current level of continuity in the DACH Family Practice program. Continuity is defined as one family seeing one assigned physician. Once a family member has seen a physician other than the assigned physician, continuity has been degraded. The second purpose of the study is to improve the level of continuity of care by developing a system or systems to ensure physicians see the families assigned to them. The short term goal is to increase patient and provider satisfaction. The knowledge gained from this study should also useful in developing panels in other primary cares areas of the DACH Coordinated Care Program.

METHOD AND PROCEDURES

The first procedure used to investigate the continuity index of the enrolled population drew data from the AQCESS computer system in use at DACH. AQCESS retains all booked and walk-in appointments that have been input by clinic staff. A sample size from the impanelled list of the impanelled Family Practice

population was examined for the continuity index (CI) of the patients. The CI is the number of visits with the assigned physician over the total number of visits to the Family Practice clinic over time. From this list, a sample size of 389 families for the entire impanelled Family Practice population was drawn so that a statistically significant sample with a 95% confidence interval was represented. The frequency of visits, the number of visits to the assigned physician, the number of members in the family, those in the family who use the Family Practice Clinic, other clinics visited, status of family, i.e., active or retired, branch of service, number of no-shows and numbers of visits to each physician type were determined from the AQCESS computer system data.

These data were analyzed to determine if the patients were receiving continuity of care, i.e. how many times the family saw its assigned physician over a one year period versus seeing an available physician. A continuity index greater than 70% is evidence of continuity of care.

The second procedure used to evaluate the physician's panel was the usual provider continuity (UPC) index. The UPC is the number of assigned patients over the total number of patients seen by the physician over time. The UPC was used by Blankfield et al. (1990) to determine physician satisfaction with a practice. A sample size from each physician's panel was taken during ten working days in April, 1993. A UPC of 80% shows that

physicians are seeing their assigned panel members. According to Blankfield et al. (1990), a high UPC should correlate to a high degree of physician satisfaction.

Once the CI and UPC were determined, discussion was introduced to improve those areas where the clinic appears to be weak. Suggestions were made to improve the system along with recommendations to carry the system over to other impanelled or primary care clinics.

Methods

Ethical Considerations

The confidentiality of all patients was maintained. At no time were patients' diagnoses available. I had access to patients' names and social security numbers, but this information was not reported to anyone.

Reliability and Validity

Reliability and validity are limited to the accuracy of the impaneled member list and the data gathered from the AQCESS computer system.

Population and Sample

Continuity Index

For this study, two sample groups were chosen. This first group was for determining the continuity index. To determine the overall continuity index of the Family Practice Clinic an alphabetized list, with the sponsor's social security number (SSN), of the 4,792 impanelled families was procured from the

administrative staff of the Family Practice Clinic. A systematic sampling method was used by selecting and highlighting the first and then every thirteenth family on the list. Using this method, 389 families were chosen which brought the confidence level to over 95%.

Each highlighted family name and SSN was individually input into the AQCESS computer system. The names of each family member registered under the sponsor's SSN were listed on the computer screen and recorded on a data gathering instrument. This method produced 1,251 individual names. Each name was then individually input into the AQCESS computer name and a query was made for all clinic visits for each individual between the dates of April 6, 1992 and April 6, 1993. A print-out was produced with every outpatient encounter for that individual during the requested time frame if no visits occurred than a blank page was output. This produced 4,790 outpatient clinic visits, 2,934, or 61.26% of which were specifically encountered by Family Practice providers.

Instrument

To gather data for the continuity index, a form was generated so that the data on each individual's appointment history print-out could be easily interpreted. The first six blocks were designed for family specific data, i.e., family name, number of family members, number of family members who had at least one visit to Family Practice during the study period, name of the assigned physician, total number of visits to Family

Practice and the number of visits to the assigned physician. Blocks seven through twenty-six were of all the outpatient clinics. Block 26 was named Other, and incorporated Cardiology, Urology and Nutrition Care Clinics. Block 27 through 61 each had the current Family Practice physician's name. The number of visits to each physician were written in these blocks. These names were arranged so each physician type could be segregated in to specific groups, i.e., faculty, staff, PY3, PY2, PY1. The data set did not contain individual physician names, only physician groups. Block 62 was coded other for patient encounters with the nurse, medical school students and/or physicians who had a permanent change of station or ended their term of service. Block 63 was for the sponsor's military status, i.e., active duty or retired. Block 64 was for the sponsor's branch of service, i.e., Army, Navy, Marine Corps, Air Force, and Other. Other was made up of Public Health Service and Coast Guard members. Block 65 used to record the number of no-shows to Family Practice and block 66 was used for no-shows to other clinics.

Usual Provider Continuity

The second sample was drawn to determine the usual provider continuity (UPC). To select the sample for the UPC, a simple random sampling was drawn from a list provided by the clinic administration. All appointments are scheduled via the AQCESS computer terminal located at the reception desk. Each day a

computer printout is given to the hospital's outpatient record room for the following day's appointments. Copies of these printouts for the study period were procured and comparisons between the list of patient and physician visited to the Family Practice's impaneled member list were made.

The list included every individual that had booked an appointment or walked into the clinic to see a physician during the month of April, 1993. The last ten clinic days of the month were chosen and every clinic visit that was captured was used in the study except for those who presented to the sports medicine clinic. The sports medicine visits were dropped from the study because individuals do not need to be impanelled in Family Practice to be seen in this clinic. This sample method produced 970 encounters.

Results

General

The data file contained 44 variables. Twelve of the variables were dichotomous and 32 were continuously coded. The dichotomous variables consisted of the five physician types, sponsor's status, sponsors rank and five branches of service.

The sampling method used produced variation in the number of families assigned to each physician type. In order to ensure the sampling method was valid, a One-Way Analysis of Variance (ANOVA) was conducted. Two comparison were made between the five physician types using the number of visits to Family Practice as

well as the number of visits to the assigned physician as separate dependant variables. This process was completed for both the total sample population, n = 389, and the population that used Family Practice during the study period, n = 264. One-Way Analysis of Variance (ANOVA) was used to determine if the visits were statistically significant. Using the total number of visits to Family Practice as the dependent variable by the respective sample groups, n = 389 and n = 264, the following were the results. For n = 389, 4 and 384 degrees of freedom (df), the F ratio was 12.18, $p < .001$. For n = 264, 4 and 258 df, the F ratio was 4.91, $p < .001$. Using the number of visits to the assigned physician as the dependent variable, n = 386, 4 and 384 df, the F ratio was 9.22, $p < .001$. For n = 264, 4 and 259 df, the F ratio was 3.38, $p < .025$. There was no statistically significant difference at the $p < .05$ level between total visits or visits to assigned physician for the five physician types for either sample population n = 389 or n = 264. This being the case, both sample groups were used in the analysis.

The descriptive statistics for the study population is at tables 1 and 2. Table 1 shows the statistics for family characteristics while table 2 describes the number of families who frequent other clinics as well as the number of visits to these clinics. Also included in table 1 is the percentage of families impanelled to the various physician types.

The statistics were broken down by the various population

samples. The first sample represents all 389 families involved in the study, the second, n = 264, is the number of families who used the Family Practice Clinic from the 389 families studied, and the third, n = 125, is the number of families who did not use the Family Practice Clinic during the study period.

Fully one third, 125 of 389 families studied, did not use the Family Practice Clinic during the study period. Reasons for this are unknown, but may be due to many of them moving from the area without giving notice to the Family Practice Administration, or due to dissatisfaction of the services provided in the clinic. This number is significant in relation to the resident's panels. The group of residents this has the greatest impact on are the first year residents. The first year resident average panel size is 25 families. If one-third of the 25 do not use the clinic than the actual panel size is approximately 17 families.

Table 1

The average number of visits for the total sample of 389 was 7.54 visits per family. However, this does not represent those who use the clinic. Of those who use the clinic, n = 264, the average number of visits is 11.11 visits per family per year. By adding the number of Family Practice Clinic visits, 2,934 with the other primary care clinic visits, 659, there were 3,593 primary care visits encounted by the 264 families that used Family Practice. This produces an average of 13.61 visits per family per year, or approximately 2.50 visits per family to

primary care clinics other than Family Practice. This may mean there is an access problem in Family Practice, or family members may go to what they perceive are specialty clinics for specific problems.

The average number of family members stayed consistent across all sample populations at 3.2 members per family. However, of those families who used Family Practice, one-third of the family members did not receive care during the study period. This resulted in the average family size who use Family Practice being 2.06 members. This size, 2.06, divided by the average number of visits, 11.11, equals 5.39 visits per individual. However, this number would increase if all primary care visits were included. The reason they are not included is the data gathered was incorporated into family units, not individual units. It is also possible that the sponsor of the families impanelled in Family Practice receives his or her care at their duty station, i.e., other military medical facilities at the Pentagon, Fort Myer, Fort McNair, Bolling Air Force Base, Andrews Air Force Base, and Quantico Marine Corps Base.

The systematic sampling method used resulted in the sample population, n = 389, being representive of the total population of 4,792. By removing those families who did not use Family Practice during the study period, the largest exodus, 46.4%, came from those assigned to staff physicians. This may be due to the fact that four of the five staff physicians practice at "stand

alone" clinics on other parts of the installation, not in the Family Practice Clinic which is located in the hospital. There may be a perception by this population that the care they receive in the stand alone clinics is inferior.

The descriptive statistics for active duty show that 61.95% of the total sample population is active duty and their family members (active duty) and 38.05% is retired and their family members (retired). However, this difference becomes much closer when those who do not use the clinic are removed from the population. When this is done, only 55.30% of those using the clinic are active duty and 44.70% are retired. Of those who did not use the clinic, 76% of them were active duty and 24% were retired. This may be due to the fact that the active duty population is constantly departing the area and not letting the administration of the clinic know to remove them from the panel list, or they find it more convenient than the retired population to find care else where.

Of those who use the clinic, 59.09% are officers and 40.91% are enlisted members. Of those who do not use the clinic, the majority, 54.40%, are officers, and 45.60% are enlisted. The disparity between officers and enlisted may be due to the large officer population located in the National Capital Region. The reason more officers do not use the clinic may be for the same reason, or officers may be less patient in waiting for care, or have more disposable income to spend on other health care options

such as CHAMPUS.

The Army takes up the bulk of those families impanelled, with 74.04%. This is no surprise since the facility is an Army Community Hospital. This holds true for those who use the clinic at 73.48% and those who do not use Family Practice at 76%. Interesting to note was that all those categorized as other, i.e., Public Health Service and Coast Guard, used the Family Practice Clinic during the study period. This may be to the lack of treatment facilities in the area that cater to these specific services.

Table 2

Table 2 shows the descriptive statistics for other outpatient clinics. This table is designed to show where impanelled members are receiving their care. The first column specifies the clinic, those that are considered primary care have an asterisk next to them. At the bottom of the first column, the clinic titled Other incorporates Cardiology, Nutrition Care and Urology, NO-SHOW FP signifies the number of families who did not show for a scheduled appointment, and NO-SHOW Other signifies the number of families who did not show for scheduled appointments in other clinics.

The second, third and fourth columns represents the total sample population, n = 389, those who use Family Practice, n = 264, and those who did not use Family Practice, n = 125, respectively during the study period. Each of the last three

columns has two numbers, the first number is the number of families who used the clinic, the second number, in parenthesis, is the total number of appointments those families had in the specified clinic.

There were 720 clinic appointments to other primary care clinics other than Family Practice, n = 389. There were 151 visits lost from Family Practice to other primary care clinics by families who did not use the Family Practice clinic, n = 125. The most often used clinic was pediatrics with 62 visits from this group.

The group that did use Family Practice, n = 264, had 659 visits to other primary care clinics. The most used clinic was the Extended Care Clinic (ECC) with 168 visits by 51 families. This was followed by Obstetrics (OB) with 146 visits by 25 families and Internal Medicine with 140 visits by 21 families. One possible reason for the high number of ECC visits is that the ECC has extended week day hours and is open on weekends while Family Practice is not. It is difficult to determine the reason for the large number of OB visits. The data do not provide information as to whether the women receives all care, to include delivery, in the OB clinic or only makes appointments when access is a problem in the Family Practice Clinic. However, the Family Practice Residents are required to deliver two babies per month. At times, women are recruited from OB and placed into a "temporary" Family Practice panel during pregnancy and several

weeks after delivery to allow for a well baby check. This may not be necessary, or greatly reduced, if the care to the women impanelled were better managed.

Continuity Index

Tables 3 and 4 provide the continuity index (CI) computations. This is determined by dividing the number of visits to the assigned physician by the number of visits to Family Practice. In addition, a CI was calculated to include the visits to other primary care clinics by those who also used Family Practice. In this instance, the number of visits to the assigned Family Practice physician was divided by the total number of primary care visits including Family Practice visits.

The first column on these tables is for the sponsor's duty status by provider type, i.e., active duty or retired as well as the combined total. The second column shows the number of visits to Family Practice. The third column shows the number of visits to the assigned physician. The CI for Family Practice only is in column four. The number of visits to other primary clinics is in column five, while the overall CI is in column six.

Table 3 provides information on Family Practice as a whole, while table 4 provides the information by provider type. In all cases, the CI was below the threshold of 70%. As shown in table 3, the overall CI for Family Practice was 55.04%. However, when the visits to other primary care clinics were included, there was a significant drop or the CI to 44.95%.

Interesting to note, when considering all primary care visits, is the drop in the CI is greater for active duty than for retired members throughout all physician types. Active duty went from 51.49% to 39.79%. Retired members dropped from 58.99% to 51.41%. Generally speaking, retired members may be older than active duty members, and the desire to see the same physician over time is greater for this group. Active duty members may desire to have the most convenient appointments and not care whether they see the same physician. These results are consistent with the findings of Rogers and Curtis (1980) in that older patients desire to see the same physician for all primary care. Another possibility is there may be an access problem in Family Practice. The frustrated response by the active duty population may be to make appointments elsewhere.

The CI shown on table 4 is provider type specific. What was true for all Family Practice physicians holds true for provider types. None of the physician types met the critical value of 70%. The closest group to do so were the staff physicians seeing retired panel members. The CI in this instance was 69.94%. However, this dropped by over ten percentage points to 59.38% when visits to other primary care clinics were included.

Overall there was small differences of the CI between physician types. The retired population remained relatively similar for each physician type when looking at visits to Family Practice, to include similar reductions for all primary care

clinics. The staff physicians had the highest CI index for Family Practice visits at 69.94%, almost meeting the 70% threshold.

There was one anomaly in the CI percentage change from Family Practice only CI to all primary care clinics CI. This occurred in the PY1 retiree population. The retiree population for this physician type did not decrease when all clinics were considered. This means each member of a retired sponsor's family that was seen by a PY1 physician did not receive treatment in any other primary care clinic. This may be due to the fact that PY1 physician appointments are scheduled in 30 minute intervals while all other physician types are in 15 minute increments. The perception by this group may be that PY1 physicians are so thorough in their diagnoses that there is no reason to go anywhere else for care.

There was wide variation in the CI for the active duty population among physician types. PY3 physicians had the highest CI at 59.19% while the PY1 physicians bottomed out at 35.71%. This may be due to negative perceptions held by those active duty families toward PY1 physicians. The perception may be that PY1 physicians are not experienced and therefore less competent in their diagnoses. This is evident in the fact that the number of visits to other primary care providers is almost equal to the number of visits to the assigned PY1 physician.

Another, possibly more valid reason for the low CI with the

PY1 physicians is due to their limited availability. This group of physicians are in the clinic for one-half day per week with a limited number of available appointments. The findings of Mechanic et al. (1983) were that those enrollees who were not able to build a physician-patient relationship with their physicians tend to disenroll and seek care elsewhere. In this case, the elsewhere may be with another physician in Family Practice and/or other primary care clinics.

Usual Provider Continuity

The appointment records for a ten clinic day period during the month of April, 1993, were procured from the administrative staff of the Family Practice Clinic. Evening clinic and sports medicine clinic appointments were excluded. The duty to staff the evening clinic rotates throughout all of the Family Practice physicians. The clinic is open four nights a week with two physicians seeing patients. Appointments are usually given the day of the appointment so the possibility of seeing one's assigned physician is greatly hindered. The sports medicine clinic is open to all DoD beneficiaries:

The list provided 970 visits, of which, 51 names were not on the impanelled family master list. A check of the temporary list of obstetric patients was made. A comparison of the 51 visits to the temporary list accounted for 10 visits, leaving 41 visits by individuals not impanelled in Family Practice. This is an average of 4.88% of the available appointments going to

individuals who are not impanelled with Family Practice. The cause for this may be due to the limited ways of determine eligibility.

The AQCESS system does not have a data field to notify appointment clerks about a patients impanelment in Family Practice. The only way to tell if an individual is impanelled when an individual calls for an appointment is to ask them or to check the paper copy of the master list. During the course of gathering information, these practices were never observed.

The usual provider continuity was determined by looking at the number of appointment the physician had and comparing each name to the master list or temporary list. Table 5 shows the results. This table is divided into four columns. The first column contains physician names by provider type with the total by physician type at the bottom of each list of physician types. The second is the number of appointments each physician had during the ten day study period. The third list is the number of appointments each physician had with individuals in his or her panel. The fourth list is the UPC.

The average UPC for the 32 physicians in the study was 66.29%, well below the threshold of 80%. However, seven physicians did have a UPC of 80.00% or higher. Those that did exceed the threshold were evenly distributed among faculty and residents. Staff physicians did not have anyone who came close to the threshold. This may be due to the fact that only one

staff physician had a significant number of appointments during the study period.

The study by Blankfield et al. (1990) showed that faculty UPC was above 80% while the residents' UPC was below 60%. In the case of DeWitt's Family Practice Program, the faculty and residents had similar UPCs of 69.09% and 67.38% respectively.

There was mild variation in the UPC between second and third year residents. The PY3 physicians had a UPC of 69.46% and the PY2 physicians had a UPC of 71.77%. The large difference was with the PY1 physicians. This group had a UPC of 40.91%. Based on the Blankfield et al. (1990) study, one could conclude that this group of residents is not satisfied with the practice. The satisfaction the other physician types experience is questionable.

Tables 6 and 7 show the panel sizes of each physician as well as the total for each physician type. Column one is the physician name, column two is the panel size by family and column three is the panel size by individual. The numbers for panel size by family in table 6 were provided by the administrative staff of Family Practice. These figures were multiplied by the average family size of 3.2, drawn from the descriptive statistics, to arrive at the average panel size by individual. This method produced 15,334 individuals impanelled in Family Practice.

The numbers in table 7 were determined by reducing the

family panel size by 33%, or the average of the number of families who did not use Family Practice during the study period defined by the sample population of 389 families. This number was then multiplied by 2.06, or the average number of individuals in each family who used Family Practice during the study. These computations resulted in the actual users of Family Practice being 6,614 individuals or 43% of the expected 15,334 impanelled members. If Family Practice were funded under a capitation system, this would be acceptable and applauded, however, this is not the current scenario.

Discussion

Both the continuity index and usual provider continuity were less than desired. This possibly means that the longitudinal patient care desires of the Residency Program are not being met (Family Practice, 1993). This being the case, residents are receiving less than optimal training. It could also mean that the writings of Reuben et al. (1988) are valid, residents are used as a cheap source of labor and are not being prepared to function in the outpatient setting. As McWhinney (1975) states, residents must be given the opportunity to build physician-patient relationships which is not being accomplished according to the continuity index shown in table 4.

However, there are some characteristics that are unique to the military population. One possible explanation for these low results are the various requirements placed on military

physicians. Military physicians are required to go on temporary duty, perform military specific training, attend an inordinate amount of meetings and participate with several committees. A few of the Family Practice physicians have administrative responsibility that takes them away from seeing patients. All of the residents have duties in other clinics or services that keep them from seeing patients in the Family Practice Clinic. When a physician is not available to see his or her assigned patients, another physician must see the departed physician's patients.

However, this does not support the low UPC of 55.91% for the lone civilian physician. This may be partly due to the fact that she is the lone civilian physician. While military physicians are away, she is the one who is relied upon to cover for the departed physicians. She also has more available appointments then any other Family Practice physician, which means, those patients who do not mind seeing any physician would be more likely to visit her.

The continuity index shown in table 4 follows the writings of Rogers and Curtis (1980). The younger population, in this case, active duty, seem to be willing to go where they are able to gain access and the older, retired population, will see the same physician at a higher rate than active duty members. However, it is in the best interest of the government to ensure every beneficiary has a gatekeeper. Gatekeepers are used to keep beneficiaries from doctor shopping, unnecessary care and ensure

appropriate care is received. The ultimate goal is to reduce health care costs. If both the active duty and retired population had easy access at one point of service through one provider, they may be satisfied enough to stop doctor shopping.

Following the writings of Rogers and Curtis (1980), if beneficiaries are concerned with seeing the same provider, it would appear that beneficiaries impanelled in Family Practice are not satisfied with the arrangement currently provided in Family Practice.

The same holds true to a lesser degree when looking at the usual provider continuity. Blankfield et al. (1990) contend that low UPC equates to low provider satisfaction. The results of the UPC for physician types are fairly similar, when looked at by individual physician, it is obvious that many have been reduced to working in an environment similar to an acute care clinic. The disparity between individuals within physician types requires further study. There must be some factors which can be used to understand this phenomenon.

The differences in the actual panel size and the possible panel size of each physician is tremendous. This being the case, many more families could be impanelled in the program to bring the impanelled population up to 15,000 individuals or more. Of course, care must be taken in any endeavor of this sort. If 15,000 individuals used the clinic an average of 5.39 times per year, 80,898 appointment slots would be required to handle the

population needs. This is an average of 2,322 encounters per year for each of the 35 physicians in Family Practice.

Solutions

If one looks strictly at the current CI and UPC indexes, neither the needs of patients or physicians are being met. In order to increase satisfaction for both parties, a better management system of the impanelment program needs to be incorporated. One possibility is developing a full time position for managing this program. The individual would be responsible for ensuring proper panel sizes, panel mixes, i.e., active duty and retiree ratios, conducting patient satisfaction questionnaires, computing CI and CPU indexes, monitoring member usage, and marketing the program.

The key to a successful impanelment program is marketing. The members must know what the program has to offer in terms of benefits as well as detractors. As stated by Mechanic et al. (1983), it is imperative that the members understand the ground rules of the managed care program. To ensure this, it should be mandatory that anyone who wants to be impanelled attend an information brief conducted by the Family Practice administration. Ground rules should be established concerning visits to other primary care clinics and specialty clinics and briefed to the potential members. Ground rules may include no visits to other primary care clinics unless under defined circumstances which occur after Family Practice hours. Penalties

may be established in this regard, for example, the first instance might cause a warning to be sent to the family and repeated instances might be cause for the family to be dropped from the program. Also, specialty clinics should not see impanelled patients unless a consult is provided by a Family Practice physician. In return, panel members will have an established point of entry, and other amenities such as a advice nurse, a case manager, a health care finder and telephonic access to their diagnostic test results.

The case manager and advice nurse are essential. The average number of visits per family is 11.11. This number may be reduced with an advice nurse to deflect some of the care needs of patients to either self care or in home care. The case manager could be used to ensure high use patients receive the proper care at the right location.

Meetings could be arranged with impanelled members on a quarterly basis where physicians provide information on current medical issues. At the end of the presentation there could be an open exchange of information. This would be beneficial to both physicians and panel members. The physicians would gain experience in presenting information to patients and hearing their concerns and members would have up-to-date information and a forum to ask questions.

Meetings could be conducted on an as needed basis for those families who filled out a request for impanelment. As families

were selected from the waiting list, a letter would be sent to them stating that they were next on the list. In order for them to be impanelled they would have to attend an information briefing. At the briefing, the ground rules would be explained. If they agreed to the rules, then they would receive a telephone call within a specified time frame informing them who their assigned physician was to be. This would be followed by a letter reiterating the name of the physician.

This meeting before impanelment would reduce the possibility that a family had changed stations while on the waiting list and not informed Family Practice. It may also entice those who use CHAMPUS or third party insurance to come back to the military health care system. Those who decide to be impanelled should turn in their white medical card and be issued a medical card that is unique to Family Practice.

This unique card will serve two purposes. It will alert other primary care clinics and the emergency room that the patient is impanelled with Family Practice. These areas could then remind the patient about the possibility of being disimpanelled as well as provide Family Practice with the names of those using the clinic. It may also give the patient a clinic to identify with and prevent them from shopping around for care.

A monthly newsletter could be mailed to each impanelled family. This would provide an avenue for physicians to disseminate their research to an interested audience and members

could write to Family Practice with questions and have the question answered in the newsletter. This would benefit those who may have similar problems, as well as provide the administration with information on the needs and concerns of the members.

Impanelled members could be solicited to become volunteers and help support their Family Practice Program. Enticements such as training and potential job placement through the Civil Service system are also important considerations in an active volunteer program. This population could be tapped to work in other areas of the hospital that support or compliment Family Practice such as the Laboratory, Pharmacy, Radiology or selected specialty clinics.

Another possibility is to increase the ratio of faculty to residents from 1.72 residents to 1 faculty, to 3 to 1. This would free up physicians to function as staff, increase their clinic time and ultimately allow them to have larger panels.

The 3 to 1 ratio would facilitate the establishment of physician groups. These groups could consist of 1 faculty and 1 staff member, 1 PY3, 1 PY2, and 1 PY1 resident. Families would still be assigned to an individual provider panel, but they would also have a physician group to visit when the assigned provider is unavailable. This way, when the patient calls for an appointment and the assigned physician is not available, the patient will have an alternative rather than taking the first

available physician. Over time and several visits, if continuity can not be maintained by one physician, continuity will be maintained by a small group of physicians with the medical record being the focal point as Hennen (1975) pointed out.

Finally, as DACH moves to impanel more beneficiaries into other primary care settings, a third party "broker" may need to be established. This broker would have the responsibility of ensuring no bias was introduced with regards to patient assignment. One of the duties would be to question families as to what they are looking for in primary care services. Do they want to be assigned to an individual physician, a group of physicians or perhaps a particular site, i.e., a stand alone clinic. Assignments will depend on family desires and use rates. As civilian networks of preferred providers are established, the broker will help alleviate any fear these providers may have of adverse selection, i.e., receiving medical outliers from the beneficiary population.

The current system in Family Practice is not being adequately managed. Asserting some degree of panel control over members is essential to building physician-patient relationships and, ultimately achieving continuity of care. The preceding recommendations constitutes a first step in that process.

Study Limitations and Recommendations for Further Research

The AQCESS computer system is not designed to do inquiries such as were done for this project. Data searches such as the

one conducted for this project slow the system to the point of being nonfunctional. On several occasions I was asked to stop the inquires by appointment clerks because the queries slowed down all terminal retrievals to such an extent that it was impossible for them to make appointments. More research needs to be conducted by DoD information personnel on computer systems that will facilitate management information.

The future vision of DoD health care looks like it will focus on some kind of impanelment for all beneficiaries with a capitated payment mechanism to the medical facilities. Without easy access to beneficiary usage patterns, it will be difficult to design programs that suit beneficiary needs.

The data set contained the number of visits to the various types of physicians. One of group in this category was visits to other, which incorporated physicians who had ended their term of service or changed station, nurse visits and visits to medical school students. This category should have been divided into three separate categories to better define the actual provider.

More research needs to be conducted to determine why people who are impanelled in Family Practice visit other primary care clinics. Reasons may include access problems, personal differences between physicians and patients, limited availability of physicians, ignorance of services offered and/or indifference by the patient. This information could be used to design programs that suit the needs of the impanelled population or

limit who is impanelled.

There was a large disparity between the CPU index of all physicians. Investigation needs to be conducted that looks at the differences between physician types and individual physicians. What are those physicians with high CPU indexes doing right and, conversely, what obstacles are causing some physicians to have low CPU indexes? This knowledge would help to improve the continuity of care to the patients.

A survey should be conducted of those individuals who did not use Family Practice during the study period to see where they received their care and if they are interested in remaining impanelled in the program. It does not make sense to keep individuals in the program who do not use the program.

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Table 1.

Family Practice Descriptive Statistics for the One Year Study

	N = 4,792	n = 389	n= 264	n = 125
Ave. # of FP Visits per Family		7.54	11.11	0.00
Ave. # of Visits to Assigned Physician/Family		4.15	6.12	0.00
Ave. # in Family		3.22	3.23	3.18
Ave. # of Family Members Who Have Visited FP		1.40	2.06	0.00
Ave. Assigned Faculty	36.98%	35.73%	38.64%	29.60%
Ave. Assigned Staff	27.59%	27.25%	18.18%	46.40%
Ave. Assigned PY3	22.29%	21.34%	26.52%	10.40%
Ave. Assigned PY2	10.04%	11.57%	12.12%	10.40%
Ave. Assigned PY1	3.11%	4.11%	4.55%	3.20%
Ave. Active Duty		61.95%	55.30%	76.00%
Ave. Officers		57.58%	59.09%	54.40%
Ave. Army		74.04%	73.48%	75.20%
Ave. Navy		8.74%	8.71%	8.80%
Ave. Marine		4.37%	4.55%	4.00%
Ave. Air Force		11.31%	10.98%	12.00%
Ave. Other		1.54%	2.27%	0.00%
Ave. # Visits to Faculty per Family		2.73	4.02	0.00
Ave. # Visits to Staff per Family		0.81	1.19	0.00
Ave. # Visits to PY3		1.79	2.63	0.00
Ave. # Visits to PY2		0.76	1.11	0.00
Ave. # Visits to PY1		0.24	0.36	0.00
Ave. # Visits to Other		1.16	1.71	0.00

Table 2.

Other Outpatient Clinic Descriptive Statistics for the One Year Study

Number of Families (Total Number of Visits)

CLINIC	n = 389	n = 264	n = 125
Adolescent*	3 (13)	3 (13)	0 (0)
Extended Care*	66 (193)	51 (168)	25 (25)
EXAM*	25 (54)	19 (42)	6 (12)
GOPC*	18 (35)	14 (29)	4 (6)
GYN*	34 (53)	26 (39)	8 (14)
Internal Med.*	26 (154)	21 (140)	5 (14)
Pediatric*	34 (134)	23 (72)	11 (62)
Obstetric*	32 (156)	25 (146)	7 (10)
Well Baby*	8 (18)	5 (10)	3 (8)
Neurology	11 (31)	9 (29)	2 (2)
Phy Therapy	48 (335)	43 (286)	5 (49)
Dermatology	42 (84)	34 (73)	8 (11)
Radiology	67 (103)	62 (98)	5 (5)
Ophthalmology	42 (83)	38 (79)	4 (4)
Orthopaedic	27 (86)	24 (79)	3 (7)
Optometry	54 (93)	43 (73)	11 (20)
Surgery	55 (131)	45 (118)	10 (13)
Podiatry	26 (51)	20 (42)	6 (9)
ENT	17 (27)	10 (19)	7 (8)
OTHER	16 (22)	13 (16)	3 (6)
NO-SHOW FP	30 (51)	30 (51)	0 (0)
NO-SHOW OTHER	36 (60)	31 (54)	5 (6)

Note. * Primary Care Clinics

Table 3.

Continuity Index (CI) of Family Practice (FP) n = 264(FP) n = 264

FAMILY ASSIGNED TO PHYSICIAN TYPE BY STATUS	FP VISITS	VISITS TO ASSIGNED PHYSICIAN	CI OF FP ONLY	VISITS BY IMPANELLED MEMBERS TO *OTHER PRIMARY CARE CLINICS	**CI OF ALL PRIMARY CARE VISITS
GRAND TOTALS					
Active Duty	1,544	795	51.49%	454	39.79%
Retired	1,390	820	58.99%	205	51.41%
GRAND TOTAL	2,934	1,615	55.04%	659	44.95%

Note. * Other Primary Care Clinics:
Adolescence Medicine
Extended Care
Physical Exam
General Outpatient
Gynecology
Internal Medicine
Pediatric
Obstetrics
Well Baby

Note. ** Continuity of all primary care clinics is determined by dividing the number of visits to the assigned physician by the number of visits to the Family Practice Clinic, plus all other* primary care clinics.

Table 4.

Continuity Index (CI) of Family Practice (FP) n = 264

FAMILY ASSIGNED TO PHYSICIAN TYPE BY STATUS OF FAMILY	FP VISITS	VISITS TO ASSIGNED PHYSICIAN	CI OF FP ONLY	VISITS BY IMPANELLED MEMBERS TO *OTHER PRIMARY CARE CLINICS	**CI OF ALL PRIMARY CARE VISITS
ASSIGNED TO FACULTY					
Active Duty	517	270	50.29%	145	39.28%
Retired	650	371	57.08%	97	49.67%
TOTAL FAC.	1,167	631	54.07%	242	44.78%
ASSIGNED TO STAFF					
Active Duty	142	64	45.07%	49	33.51%
Retired	163	114	69.94%	29	59.38%
TOTAL STAFF	305	178	58.36%	78	46.48%
ASSIGNED TO PY3					
Active Duty	566	335	59.19%	138	47.59%
Retired	382	225	58.90%	62	50.68%
TOTAL PY3	948	560	59.70%	200	48.78%
ASSIGNED TO PY2					
Active Duty	179	86	48.05%	75	33.86%
Retired	160	90	56.90%	17	50.85%
TOTAL PY2	339	176	51.92%	92	40.84%
ASSIGNED TO PY1					
Active Duty	140	50	35.71%	47	26.74%
Retired	35	20	57.14%	0	57.14%
TOTAL PY1	175	70	40.00%	47	31.53%

Table 5.

Usual Provider Continuity (UPC) Indexes of Family Practice

* PHYSICIAN NAME	NUMBER OF APPOINTMENTS	NUMBER OF APPOINTMENTS SEEING ASSIGNED FAMILY	UPC PERCENTAGE
Henley	21	11	53.38%
Johnson	57	50	87.72%
Jones	32	24	75.00%
Kimes	52	46	88.46%
Kirkwood	29	15	51.72%
Knouse	47	26	55.32%
Michaels	33	10	30.30%
Morman	24	17	70.83%
O'Connor	56	37	66.07%
Young	54	21	38.89%
TOTAL FACULTY	372	257	69.09%
Petteruti	3	1	33.33%
Solomon	2	0	0.00%
Abdelmalek	127	71	55.91%
TOTAL STAFF	132	72	53.79%
Barter	48	29	60.42%
Casner	56	44	78.57%
Gonzales	42	31	73.81%
Higginbotham	32	24	75.00%
Lehmann	41	19	46.34%
Luszczak	44	29	65.91%
Madany	35	31	88.57%
TOTAL PY3	298	207	69.46%

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* PHYSICIAN NAME	NUMBER OF APPOINTMENTS	NUMBER OF APPOINTMENTS SEEING ASSIGNED FAMILY	UPC PERCENTAGE
Billingslea	20	12	60.00%
Brittig	24	20	83.33%
Greco	20	11	55.00%
Heflin	21	18	85.71%
McCormick	22	16	72.73%
Wuest	17	12	70.59%
TOTAL PY2	124	89	71.77%
Collins	8	7	87.50%
Friedman	8	2	25.00%
Larson	9	0	0.00%
Lefler	8	3	37.50%
Marean	5	4	80.00%
Vandermeid	6	2	33.33%
TOTAL PY1	44	18	40.91%
GRAND TOTAL	970	643	66.29%

Note. * Physicians who did not see patients in the main Family Practice Clinic were not included.

Table 6.

Family Practice Clinic: Impanelled Members by Physician

PHYSICIAN	PANEL SIZE BY FAMILY	PANEL SIZE BY INDIVIDUAL (multiplied by average family size of 3.2)
1. Escolas	132	422
2. Henley	129	413
3. Johnson	158	506
4. Jones	178	570
5. Kimes	150	480
6. Kirkwood	147	470
7. Knouse	168	538
8. Michaels	170	544
9. Morman	183	587
10. O'Connor	171	547
11. Young	186	595
FACULTY TOTAL	1,772	5,672
12. Abdelmalek	382	1,222
13. Howells	219	701
14. Little	185	592
15. Petteruti	249	797
16. Solomon	287	918
STAFF TOTALS	1,322	4,230
17. Barter	146	467
18. Casner	151	483
19. Gonzalez	150	480
20. Higginbotham	163	522
21. Lehmann	151	483
22. Luszczak	149	477
23. Madany	158	506
PY3 TOTALS	1,068	3,418

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PHYSICIAN	PANEL SIZE BY FAMILY	PANEL SIZE BY INDIVIDUAL (multiplied by average family size of 3.2)
24. Billingslea	82	262
25. Brittig	81	259
26. Greco	85	272
27. Heflin	74	237
28. McCormick	73	234
29. Weust	86	275
PY2 TOTALS	481	1,539
30. Collins	25	80
31. Friedman	23	74
32. Larson	26	83
33. Lefler	25	80
34. Marean	23	74
35. Vandermeid	27	86
PY1 TOTALS	149	477
GRAND TOTALS	4,792	15,334

Table 7.

FP Clinic: Panel Size Based on use Reductions

PHYSICIAN	PANEL SIZE BY FAMILY (67% of assigned families)	PANEL SIZE BY INDIVIDUAL (multiplied by 2.06, ave. # of members who use FP)
1. Escolas	88	182
2. Henley	86	178
3. Johnson	106	218
4. Jones	119	246
5. Kimes	101	207
6. Kirkwood	99	203
7. Knouse	113	232
8. Michaels	114	235
9. Morman	123	253
10. O'Connor	115	236
11. Young	125	257
FACULTY TOTAL	1,187	2,446
12. Abdelmalek	256	527
13. Howells	147	302
14. Little	124	255
15. Petteruti	167	344
16. Solomon	192	396
STAFF TOTAL	886	1,825
17. Barter	98	202
18. Casner	101	208
19. Gonzalez	101	207
20. Higginbotham	109	225
21. Lehmann	101	208
22. Luszczak	100	206
23. Madany	106	218
PY3 TOTAL	716	1,474

PHYSICIAN	PANEL SIZE BY FAMILY (67% of assigned families)	PANEL SIZE BY INDIVIDUAL (multiplied by 2.06, ave. # of members who use FP)
24. Billingslea	55	113
25. Brittig	54	112
26. Greco	57	117
28. Heflin	50	102
29. McCormick	49	101
30. Weust	58	119
PY2 TOTAL	322	664
30. Collins	17	35
31. Friedman	15	32
32. Larson	17	36
33. Lefler	17	35
34. Marean	15	32
35. Vandermeid	18	37
PY1 TOTAL	100	206
GRAND TOTAL	3,210	6,614

Note. Totals may be skewed due to rounding.